

Discovering Mathematical Concepts with Dynamic Software: A Demonstration

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Abstract: This presentation demonstrates the implementation of dynamic software in secondary mathematics classrooms (grades 7-12). It illustrates successful activities for infusing *The Geometer's Sketchpad*, version 4.06 (Key Curriculum Press) and *Winplot* (available free over the internet) into the teaching and learning of geometry, algebra, trigonometry and introductory calculus. Unlike traditional instruction, which follows the lecture→example→assignment sequence, this software offers modalities for learning that appeal to students with a variety of learning styles. Moreover, it mirrors the recommendations of NCTM and prominent learning theorists. Specifically, NCTM (2000) advocates mathematics instruction that is inquiry-based, collaborative, and involves open-ended investigations. The *Geometer's Sketchpad* and *Winplot* provide learning environments that accommodate these activities. Specific applications of this software within an NSF-funded (\$11.6 million) project are included. The project, titled "Mathematics, Science and Technology Partnership" (2003-2008), is conducted at Hofstra University on Long Island, New York.